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Patent App. SN: 10/627,442 Attorney Docket No. 22001

REMARKS

In the Office Action mailed January 24, 2007 (hereinafter, the "Office Action"), Claims 1-17 were pending for consideration. Previously, Claims 18-20 were canceled and Claims 21-30 were withdrawn from consideration. Presently, Claim 1 has been amended and Claims 6-8 have been canceled. Of the pending claims, Claims 1-5 and 9-17 have been rejected as allegedly indefinite under 35 U.S.C. 112, as allegedly anticipated under 35 U.S.C. 102(b), and/or as allegedly obvious under 35 U.S.C. 103(a). The Examiner maintained five previously cited rejections and added four new rejections based on newly cited art.

By the present amendment, Claim 1 has been rephrased to add clarity, and has been amended to include the limitations of originally filed Claim 8. Specifically, the claim now requires nanodiamond particles that have an average diameter of from about 2 nm to about 30 nm. It is also clear that the mass includes at least 95% by volume of nanodiamond. Of the remaining 5%, at least 3% is composed of any combination of nanodiamond or non-diamond carbon. Further, the mass is free of residual catalyst. Support for the amendments to Claim 1 may be found in the originally filed Claims 1-8 as well as in the originally filed specification in the following locations: pg. 7, lines 6-18 and 27-34; pg. 8, lines 9-20; and pg. 9, lines 13-22. Accordingly, Applicant respectfully submits that no new matter is added by this amendment. Furthermore, such amendments are made without conceding the correctness of the present rejections and without prejudice to Applicants' right to pursue relinquished subject matter in a future patent application. The Applicant specifically considers such amendment to place claims in better condition for allowance or appeal and therefore respectfully requests such amendment should be entered.

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35 U.S.C. 112, Second Paragraph Rejections

The Examiner rejected Claims 1-17 as allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Specifically, the Examiner took issue with Claim 1 and Claim 5. The remaining claims were rejected as depending on indefinite claims. As Claim 1 has been amended, and meaning and description are clearly put forth in the language of the claim, the Applicant believes this rejection to be moot.

Regarding Claim 5, the Applicant submits that the claim is clear on its face. Indeed, carbon can exist in many forms, as the Examiner points out. The language of Claim 1, from which Claim 5 depends, sets forth the mass content of at least 98% by volume of the mass as being carbon allotrope (in the form of nanodiamond and possibly including a small amount of non-diamond carbon). Claim 5 adds the further limitation of defining the content of the entire mass as being carbon, in any of its allotropic forms providing it meets the requirements of content put forth in Claim 1. The portion defined by Claim 1 is carbon and therefore, the added limitation serves to define that the "less than about 2% by volume" is composed of carbon. The Examiner's concern that "consists of carbon" reading on a mass that consists of graphite is unfounded, as Claim 5 depends on Claim 1 and is therefore subject to the limitations of Claim 1, which would not read on a mass composed entirely of graphite. However, the claims would permit graphite, as an allotrope of carbon, to be present in the mass in an amount of less than about 2% by volume. Such interpretation of Claim 5 is clear on its face.

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As such, the Applicant submits that Claims 1 and 5, and all claims depending therefrom are not indefinite, but clearly and distinctly claim the subject matter regarded as the invention. Therefore, removal of the rejection is respectfully requested.

Previous Art Rejections

The Examiner maintained 5 rejections from the previous Office Action. These rejections are directed toward Claims 1-7 and 10-17 as allegedly obvious under 35 U.S.C. § 103(a) over a number of references and combinations of references. Specifically;

- (a) Claims 1-7 and 16-17 were rejected as allegedly obvious over Akashi et al.,
- (b) Claims 1-6, 10 and 16-17 were rejected as allegedly obvious over JP 2-30667,
- (c) Claims 11 and 15 were rejected as allegedly obvious over Akashi et al., applied to Claim 1 and in view of Cerutti,
- (d) Claims 11 and 15 were rejected as allegedly obvious over JP 2-30667 applied to Claim 1 and in view of Cerutti, and
- (e) Claims 12-14 were rejected as allegedly obvious over either (1) Akashi et al. in view of Cerutti as applied to Claim 11 or (2) JP 2-30667 in view of Cerutti as applied to Claim 11, all in view of Phaal et al. and Wentorf, Jr. et al.

By the present amendment, the subject matter of Claim 8 is included in Claim 1. As none of the previous art rejections are directed to Claim 8, it is believed that the subject matter, now included in Claim 1, is allowable in light of the above-cited references, and the listed rejections are moot. Therefore, the Applicant respectfully requests removal of the rejections based on previous art as outlined above.

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New Art Rejections

The Examiner rejected all pending claims over a new reference. Specifically,

- (a) Claims 1-7 and 16-17 were rejected under 35 U.S.C. 102(b) as allegedly anticipated by WO 02/09909.
- (b) Claims 8-10 were rejected under 35 U.S.C. 103(a) as allegedly obvious over WO 02/09909.
- (c) Claims 11 and 15 were rejected under 35 U.S.C. 103(a) as allegedly obvious over WO 02/09909, as applied to Claim 1, in view of Cerutti.
- (d) Claims 12-14 were rejected under 35 U.S.C. 103(a) as allegedly obvious over WO 02/09909 in view of Cerutti, as applied to Claim 11, in view of Phaal et al. and Wentorf, Jr. et al.

As the subject matter of Claim 8 has been amended into independent Claim 1, rejections (a), (c), and (d) are believed to be moot. Therefore, removal of the rejections is respectfully requested. Rejection (b) is addressed below.

As with the prior correspondence, before discussing the § 103 rejections, it is thought proper to briefly state what is required to sustain such a rejection. The issue under § 103 is whether the PTO has stated a case of *prima facie* obviousness. "The PTO has the burden under § 103 to establish a *prima facie* case of obviousness." In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). To satisfy this burden, the PTO must meet the criteria set out in M.P.E.P § 706.02(j):

... three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined)

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must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

With the above background in mind, rejection (b) will be discussed. Applicant contends that the PTO has failed to make a *prima facie* case of obviousness in that in view of the presently amended Claim 1, the newly-cited reference fails to teach or suggest all of the claim limitations, nor does it provide suggestion or motivation to modify the reference.

In the Office Action, the Examiner noted that WO 02/09909 teaches a size of less than 60 microns, and then stated, "this encompasses and therefore makes obvious the claimed nanometer size because the reference overlaps the claimed range." While the Applicant does not disagree that overlapping ranges have been held to be *prima facie* obviousness, the Applicant respectfully submits that such is not the case with the present application. Regarding the particle size, WO 02/09909 teaches that 60 microns is a maximum particle size, and further states that 0.1 microns is a minimum particle size. pg. 8, ln. 26-30. The range 0.1- 60 microns, as taught in WO 02/09909, is clearly outside of the claimed range of about 2 nm to about 30 nm.

Further, the reference does not provide suggestion to modify the reference to the claimed invention. While the reference does teach an upper particle size limit, as identified by the Examiner, the reference further, and immediately following teaching of the upper limit, teaches a lower particle size limit. Therefore, one of ordinary skill would not take the taught size "less than 60 microns" as an open-ended downwardly extending range. Rather, the context of the reference teaches a size range that does not overlap and is not near the claimed size range of the present invention.

In light of the above comments, Applicant respectfully submits that WO 02/09909 fails to

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teach or suggest each of the elements of the claimed invention. Further, the reference fails to provide motivation to modify the reference to the presently claimed invention. As such, a *prima facie* case necessary to support a §103 rejection was not established in the Office Action. Accordingly, Applicant respectfully requests that the above rejection be withdrawn.

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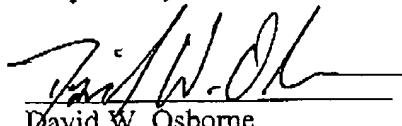
CONCLUSION

In view of the foregoing, Applicant believes that presently pending Claims 1-5 and 9-17 present allowable subject matter and allowance is respectfully requested. If any impediment to the allowance of these claims remains after consideration of the above remarks, and such impediment could be resolved during a telephone interview, the Examiner is invited to telephone the undersigned attorney at (801) 566-6633, to address such issues as expeditiously as possible.

The Commissioner is hereby authorized to charge any additional fee or to credit any overpayment in connection with this Amendment to Deposit Account No. 20-0100.

Dated this 15 day of March, 2007.

Respectfully submitted,



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